National Institute of Environmental Health Sciences

Future temperature-related morbidity burdens of salmonellosis and Ross River Virus infection in South Australia, A scenario-based projection

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Abstract:

Objective: The impact of climate change on infectious diseases, including both vector-borne and food-borne diseases, has been a concern in recent years. However, there have been few studies assessing future health burden related to climate change at a local level. This study aims to project morbidity burdens of salmonellosis and Ross River Virus (RRV) infection associated with increased temperature in South Australia in order to provide local evidence for policy making. Methods: Years Lost due to Disabilities (YLDs) were used as the measure of the morbidity burden of the diseases. The YLDs were calculated based on the framework of the Australian National Burden of Disease study. Disease surveillance data of the target diseases were collected from the South Australia Department of Health. The projected increase in temperature was used as a proxy for future climate scenarios, which were obtained from the latest Commonwealth Scientific and Industrial Research Organization (CSIRO) report. The quantitative relationship between temperature and the diseases was based on the regression models developed in previous studies. YLDs for salmonellosis and RRV infection in 2000 were examined as the baseline data. Projection of YLDs in 2030 and 2050 under future temperature and demographic scenarios were conducted. Results: Compared with the YLDs observed in 2000, if other factors remain constant, the YLDs for salmonellosis might increase by up to 48% by 2030, and nearly double by 2050 in South Australia. The YLDs for RRV infection might increase by up to 66 percent by 2030, and nearly double by 2050 in South Australia. Conclusion: The health burden of both vector-borne and food-borne diseases in South Australia might greatly increase due to increased temperature if there is no effective mitigation and adaptation measure. Public health strategies with consideration of local conditions should be developed at an earlier stage to prevent and reduce the impact of extra health burden associated with climate change.

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http://iopscience.iop.org/1755-1315/6/14/142035

Resource Description

Climate Scenario :

specification of climate scenario (set of assumptions about future states related to climate)

Other Climate Scenario

Other Climate Scenario: obtained from the latest Commonwealth Scientific and Industrial Research Organization (CSIRO) report

Communication: ☑

resource focus on research or methods on how to communicate or frame issues on climate change; surveys of attitudes, knowledge, beliefs about climate change

A focus of content

Communication Audience: ☑

audience to whom the resource is directed

Policymaker

Exposure : ☑

weather or climate related pathway by which climate change affects health

Temperature

Geographic Feature: ☑

resource focuses on specific type of geography

None or Unspecified

Geographic Location: ☑

resource focuses on specific location

Non-United States

Non-United States: Australasia

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Infectious Disease, Injury

Infectious Disease: Foodborne/Waterborne Disease, Vectorborne Disease

Foodborne/Waterborne Disease: Salmonellosis

Vectorborne Disease: Mosquito-borne Disease

Mosquito-borne Disease: Ross River Virus

Mitigation/Adaptation: ☑

mitigation or adaptation strategy is a focus of resource

Adaptation

Model/Methodology: ☑

type of model used or methodology development is a focus of resource

Outcome Change Prediction

Resource Type:

format or standard characteristic of resource

Research Article

Timescale:

time period studied

Medium-Term (10-50 years)

Vulnerability/Impact Assessment:

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content